

Claims

1. A treatment apparatus, comprising:
 a first hermetic chamber having a first opening;
 5 a tube capable of inserting into the first opening, and the tube having
 a second opening in an inserting direction; and
 a hermetic door capable of opening and closing the first opening, and
 the door being shielded from the first hermetic chamber by the tube when the
 tube is inserted into the first opening.
- 10 2. The treatment apparatus as set forth in claim 1, further comprising:
 an exhaust system connected to the first hermetic chamber via the first
 opening.
3. The treatment apparatus as set forth in claim 2,
 wherein the exhaust system is connected to the first hermetic chamber
 15 via the tube.
4. The treatment apparatus as set forth in claim 1,
 wherein the tube has a third opening on a side opposite to the first
 hermetic chamber with the hermetic door therebetween when the tube is
 inserted into the first opening.
- 20 5. The treatment apparatus as set forth in claim 1, further comprising:
 a means for regulating a temperature in the first hermetic chamber.
6. The treatment apparatus as set forth in claim 1, further comprising:
 a means, placed along the inserting direction of the tube, for guiding
 an inserting operation of the tube.
- 25 7. The treatment apparatus as set forth in claim 1,
 wherein the first hermetic chamber has a plurality of the first openings,

and the tube and the hermetic door are provided at each of the first openings.

8. The treatment apparatus as set forth in claim 1,
wherein a plurality of the first hermetic chambers are lined up,
partitioned off by openable and closeable partitions.

9. The treatment apparatus as set forth in claim 1, further comprising:
a second hermetic chamber adjoining the first hermetic chamber with
the hermetic door therebetween, wherein the tube is inserted into the first
opening of the first hermetic chamber from the second hermetic chamber.

10. The treatment apparatus as set forth in claim 9,
wherein the tube has a third opening on the second hermetic chamber
side when the tube is inserted into the first opening.

11. The treatment apparatus as set forth in claim 9, further comprising:
an exhaust system connected to the first hermetic chamber via the
second hermetic chamber.

12. The treatment apparatus as set forth in claim 11, further comprising:
an exhaust system connected to the first hermetic chamber via the
second hermetic chamber, wherein the third opening of the tube and the
exhaust system are hermetically connected when the tube is inserted into the
first opening of the first hermetic chamber.

13. The treatment apparatus as set forth in claim 9, further comprising:
a means for performing regulation so that a pressure in a space
between the tube and the second hermetic chamber is higher than a pressure
in the first hermetic chamber when the tube is inserted into the first opening
of the first hermetic chamber.

14. The treatment apparatus as set forth in claim 9, further comprising:
a means for performing regulation so that a pressure in the first

hermetic chamber is lower than a pressure in a space between the tube and the second hermetic chamber and higher than a pressure in the tube when the tube is inserted into the first opening of the first hermetic chamber.

15. The treatment apparatus as set forth in claim 13,

5 wherein the pressure regulating means has a means for supplying a carrier gas to a space between the tube and the second hermetic chamber.

16. The treatment apparatus as set forth in claim 9, further comprising:
a filter means placed between the second hermetic chamber and the exhaust means.

10 17. The treatment apparatus as set forth in claim 16,
wherein the filter means includes at least a wet filter.

18. The treatment apparatus as set forth in claim 9,
wherein the tube is exchangeably provided, and the second hermetic chamber has a hermetically openable and closeable door for exchanging the tube.
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19. The treatment apparatus as set forth in claim 9, further comprising:
a means for regulating a temperature in the second hermetic chamber.

20. The treatment apparatus as set forth in claim 9, further comprising:
a means for supplying a non-oxidizing gas to the second hermetic chamber.
20 chamber.

21. A treatment method, comprising the steps of:

heating an object to be treated under reduced pressure in a hermetic zone to vaporize a component of the object to be treated; and

opening a hermetic door and inserting a tube from the side of a treatment system for the vaporized component adjoining the hermetic zone
25 with the openable and closeable hermetic door therebetween so that the

hermetic door is shielded from the hermetic zone to introduce the component vaporized from the object to be treated to the treatment system side.

22. The treatment method as set forth in claim 21,
wherein the vaporized component from the object to be treated is
5 condensed by cooling the tube.

23. The treatment method as set forth in claim 21,
wherein the component introduced to the treatment system is
decomposed.

24. The treatment method as set forth in claim 21,
10 wherein the component introduced to the treatment system is
adsorbed by an adsorbent.

25. A treatment method, comprising the steps of:
heating an object to be treated in a hermetic zone to thermally
15 decompose a component of the object to be treated; and
opening a hermetic door and inserting a tube from the side of a
treatment system for a component of a gaseous emission produced by the
thermal decomposition adjoining the hermetic zone with the openable and
closeable hermetic door therebetween so that the hermetic door is shielded
from the hermetic zone to introduce the gaseous emission to the treatment
20 system side.

26. A treatment method, comprising the steps of:
introducing an object to be treated into a hermetic zone;
reducing a pressure in the hermetic zone to extract a component of the
object to be treated; and
25 opening a hermetic door and inserting a tube from the side of a
treatment system for the extracted component adjoining the hermetic zone

with the openable and closeable hermetic door therebetween so that the hermetic door is shielded from the hermetic zone to introduce the extracted component to the treatment system side.

27. A treatment method, comprising the steps of:

5. heating an object to be treated containing a first metal under reduced pressure in a first hermetic zone to vaporize the first metal;

inserting a tube from a second hermetic chamber adjoining the hermetic zone with an openable and closeable hermetic door therebetween so that the hermetic door is shielded from the first hermetic chamber; and

10. cooling the tube to condense the first metal.

28. A soil treatment method, comprising the steps of:

heating a soil containing a first metal under reduced pressure in a hermetic zone to vaporize the first metal;

15. inserting a tube from a second hermetic chamber adjoining the hermetic zone with an openable and closeable hermetic door therebetween so that the hermetic door is shielded from the first hermetic chamber; and

cooling the tube to condense the first metal vaporized from the object to be treated.

29. The treatment method as set forth in claim 28,

20. wherein a heated residue of the soil is cooled by a cooling gas which is substantially organic halide-free.

30. A soil treatment method, comprising the steps of:

25. heating a soil containing a moisture, an organic substance, and a first metal in a hermetic zone to vaporize the moisture and vaporize or thermally decompose the organic substance;

opening a first hermetic door and inserting a tube from the side of a

treatment system for the moisture, the organic substance, or a thermal decomposition product of the organic substance connected to the hermetic zone with the openable and closeable first hermetic door therebetween so that the first hermetic door is shielded from the hermetic zone to introduce the vaporized moisture, the vaporized organic substance, or the thermal decomposition product of the organic substance to the treatment system side;

vaporizing the first metal after the vaporization of the moisture and the organic substance and the thermal decomposition of the organic substance;

opening a second hermetic door and inserting a tube from the side of a second hermetic chamber adjoining the hermetic zone with the openable and closeable second hermetic door therebetween so that the second hermetic door is shielded from the hermetic zone to introduce the vaporized first metal to the second hermetic chamber; and

cooling the tube to condense at least the first metal.

31. The treatment method as set forth in claim 30,
wherein the thermal decomposition of the soil and the vaporization of the first metal are performed under reduced pressure.

32. The treatment method as set forth in claim 30,
wherein the soil is cooled by a cooling gas which is substantially organic halide-free after the first metal is vaporized.

33. A treatment apparatus, comprising:
a hermetic zone for housing an object to be treated;
an exhaust system for exhausting the hermetic zone;
a means for heating the interior of the hermetic zone;
a reforming means, placed between the hermetic zone and the exhaust

system, for reforming a gaseous emission produced by heating the object to be treated; and

- 5 a means for controlling the heating means and the reforming means so that the object to be treated is heated after the reforming means gets ready to reform the gaseous emission.

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